

FOR TEACHERS ONLY

The University of the State of New York
REGENTS HIGH SCHOOL EXAMINATION

PHYSICAL SETTING/EARTH SCIENCE

Friday, June 19, 2015 — 9:15 a.m. to 12:15 p.m., only

SCORING KEY AND RATING GUIDE

Directions to the Teacher:

Refer to the directions on page 2 before rating student papers.

Updated information regarding the rating of this examination may be posted on the New York State Education Department's web site during the rating period. Check this web site at: <http://www.p12.nysed.gov/assessment/> and select the link "Scoring Information" for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Part A and Part B-1

Allow 1 credit for each correct response.

Part A

1 1	10 2	19 1	28 2
2 2	11 3	20 2	29 1
3 2	12 2	21 4	30 4
4 1	13 1	22 4	31 2
5 3	14 3	23 2	32 1
6 4	15 4	24 1	33 4
7 1	16 4	25 3	34 1
8 2	17 3	26 2	35 3
9 4	18 4	27 3	

Part B-1

36 4	40 1	44 3	48 1
37 2	41 4	45 2	49 2
38 3	42 1	46 4	50 4
39 2	43 3	47 3	

Directions to the Teacher

Follow the procedures below for scoring student answer papers for the Regents Examination in Physical Setting/Earth Science. Additional information about scoring is provided in the publication *Information Booklet for Scoring Regents Examinations in the Sciences*.

Do not attempt to correct the student's work by making insertions or changes of any kind. If the student's responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Allow 1 credit for each correct response.

At least two science teachers must participate in the scoring of the Part B–2 and Part C open-ended questions on a student's paper. Each of these teachers should be responsible for scoring a selected number of the open-ended questions on each answer paper. No one teacher is to score more than approximately one-half of the open-ended questions on a student's answer paper. Teachers may not score their own students' answer papers.

Students' responses must be scored strictly according to the Scoring Key and Rating Guide. For open-ended questions, credit may be allowed for responses other than those given in the rating guide if the response is a scientifically accurate answer to the question and demonstrates adequate knowledge as indicated by the examples in the rating guide. On the student's separate answer sheet, for each question, record the number of credits earned and the teacher's assigned rater/scorer letter.

Fractional credit is *not* allowed. Only whole-number credit may be given for a response. If the student gives more than one answer to a question, only the first answer should be rated. Units need not be given when the wording of the questions allows such omissions.

For hand scoring, raters should enter the scores earned in the appropriate boxes printed on the separate answer sheet. Next, the rater should add these scores and enter the total in the space provided. The student's score for the Earth Science Performance Test should be recorded in the space provided. Then the student's raw scores on the written test and the performance test should be converted to a scale score by using the conversion chart that will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Friday, June 19, 2015. The student's scale score should be entered in the box labeled "Scale Score" on the student's answer sheet. The scale score is the student's final examination score.

Schools are not permitted to rescore any of the open-ended questions on this exam after each question has been rated once, regardless of the final exam score. Schools are required to ensure that the raw scores have been added correctly and that the resulting scale score has been determined accurately.

Because scale scores corresponding to raw scores in the conversion chart may change from one administration to another, it is crucial that, for each administration, the conversion chart provided for that administration be used to determine the student's final score.

51 [1] Allow 1 credit if *both* responses are correct. Acceptable responses include, but are not limited to:

Glaciers:

- will melt
- will retreat
- decrease in size
- become smaller
- shrink
- The rate of melting will increase.

Sea level:

- will rise
- increase
- higher
- coastal flooding

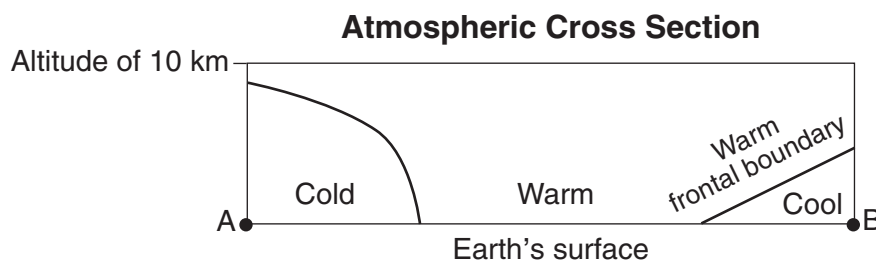
52 [1] Allow 1 credit for circling ocean *and* correctly describing the relative temperature of Earth's surface. Acceptable descriptions include, but are not limited to:

- warmer
- hot
- a tropical temperature

Note: Do *not* allow credit for a numerical answer because there are no temperatures indicated for comparison.

53 [1] Allow 1 credit for a line that starts from line AB, passes between the cold and warm labels, *and* curves up to the left.

Example of a 1-credit response:



54 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

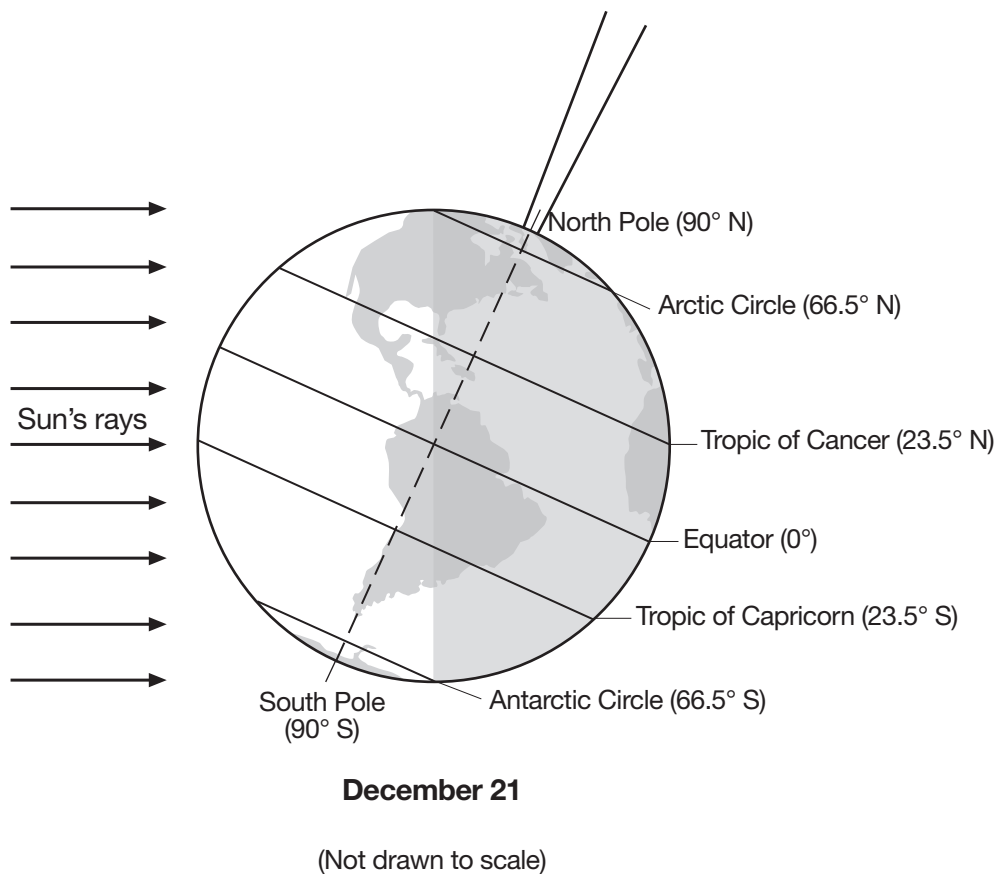
- rotation
- spinning/turning on its axis

Note: Do *not* allow credit for “Earth’s rotation around the Sun” because this confuses rotation with revolution.

55 [1] Allow 1 credit for a response that indicates 4 h.

56 [1] Allow 1 credit for an arrow within or touching the zone shown that points away from the North Pole and is generally aligned with Earth’s axis.

Note: Do *not* accept a line without an arrowhead because it does not show direction. It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.

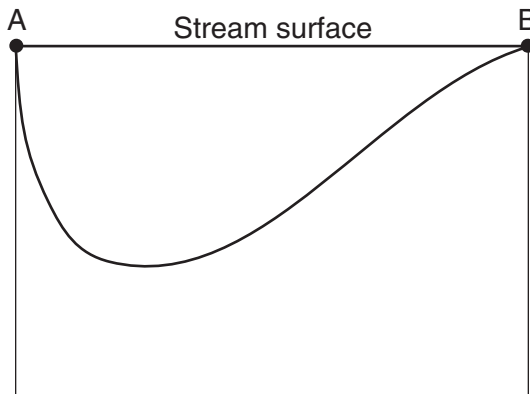


57 [1] Allow 1 credit for 44°.

Note: Do *not* allow credit if a compass direction is given (e.g., 44 N or 44° N) because that denotes latitude, *not* altitude.

- 58 [1] Allow 1 credit if the student's line is drawn from point A to point B and shows that the stream channel is deeper near side A.

Example of a 1-credit response:



- 59 [1] Allow 1 credit. Acceptable responses include, but are not limited to:
- The particles were weathered by abrading with other particles.
 - Rolling and bouncing along the streambed breaks off corners and polishes rocks.
 - The sediments scrape against the streambed.
 - They rub against one another.
 - abrasion
 - weathering due to collision of particles

Note: Do *not* allow credit for water *or* erosion, acting alone, to smooth rocks because this is restating the question, and water alone, without sediments, does not abrade rock.

- 60 [1] Allow 1 credit for delta *or* any specific type of delta.

- 61 [1] Allow 1 credit for *two* correct responses. Acceptable responses include, but are not limited to:
- stream velocity/speed
 - gradient/slope of the stream
 - location within a meander/stream channel
 - volume/amount of stream discharge
 - shape of stream channel (straight vs. meandering)
 - water depth
 - material found in the stream or along the streambed (vegetation, trees, sediments)
 - type of bedrock
 - particle size/shape/density

62 [1] Allow 1 credit for $8\text{C}^\circ/\text{month}$ *or* $-8\text{C}^\circ/\text{mo}$.

63 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Omaha is surrounded by land, which has a low specific heat.
- The Pacific Ocean moderates the temperature/climate of Eureka.
- Large bodies of water change temperature more slowly than land does.
- Water has a higher specific heat than land.
- The relatively drier air around Omaha has a lower specific heat than the moist air around Eureka.

Note: Do *not* allow credit for “Eureka is closer to water so temperatures remain constant” because this just restates the question without explaining the role that water plays in causing constant temperatures.

64 [1] Allow 1 credit for January *or* Jan.

65 [1] Allow 1 credit for California Current.

Part C

66 [1] Allow 1 credit if *both* responses are correct. Acceptable responses include, but are not limited to:

Air temperature at *X*:

- cooler
- lower/less
- decreased
- colder than *Y*

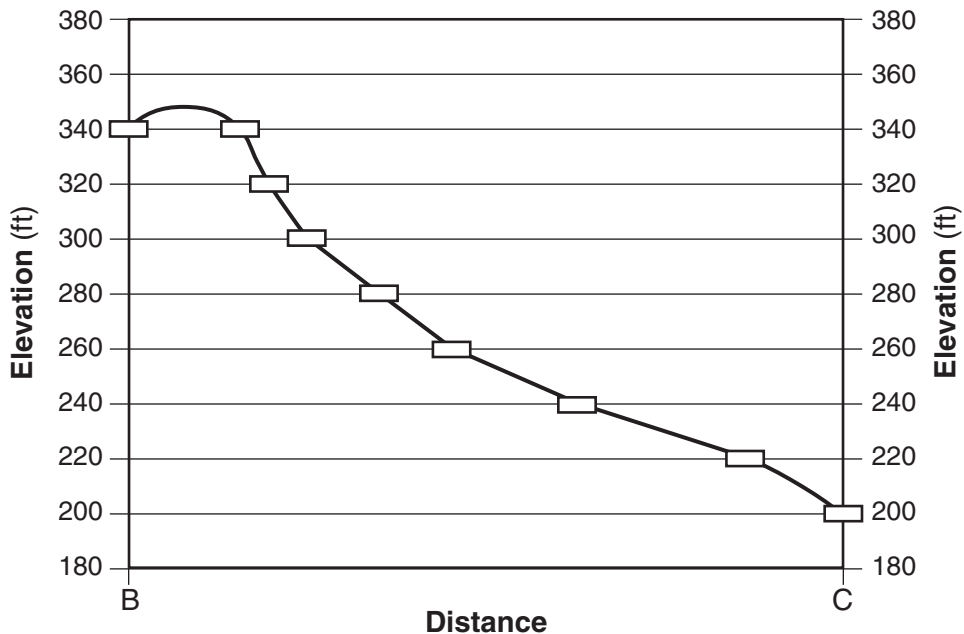
Water vapor content at *X*:

- higher/more
- 100% relative humidity
- wetter
- saturated
- more humid than *Y*

67 [1] Allow 1 credit for 300 ft.

68 [1] Allow 1 credit if the centers of *all nine* plots are within or touch the rectangles shown and are correctly connected with a line that passes within or touches the rectangles. The line must show a hill higher than 340 feet but lower than 360 feet.

Note: It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.



69 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Contour lines bend upstream when they cross Coe Creek.
- Contour line elevations decrease toward the northeast along Coe Creek.
- The V shapes of the contour lines point upstream toward higher elevations.
- Lower elevations are toward the northeast.
- Contour lines make V-shapes that point southwest.
- The contour lines are bending in the opposite direction.

Note: Do *not* allow credit for “water flows downhill” because this does not indicate how contour lines show stream direction.

70 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- Contour lines between *D* and *E* are closer together.
- Contour lines between *F* and *G* are farther apart, indicating a slower stream velocity.
- Contour lines that are closer together indicate a steeper slope/gradient.
- There is a greater elevation change between *D* and *E*.

Note: Do *not* allow credit for “*D* and *E* are closer” because *F* and *G* are the same distance apart. Do *not* allow credit for “the slope or gradient is steeper” alone because this does not indicate how contour lines show a steeper slope.

71 [1] Allow 1 credit for any value from 38 to 42 with acceptable units. Acceptable units include, but are not limited to:

- ft/mi
- feet/mi
- feet/mile

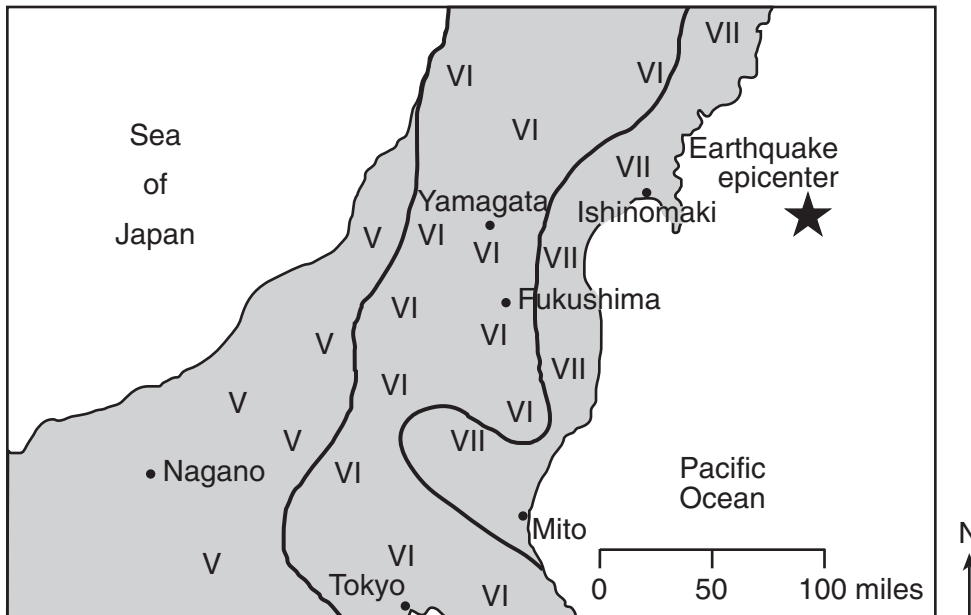
72 [1] Allow 1 credit for any acceptable line separating all values of VI from VII.

Note: Allow credit even if the line passes through water.

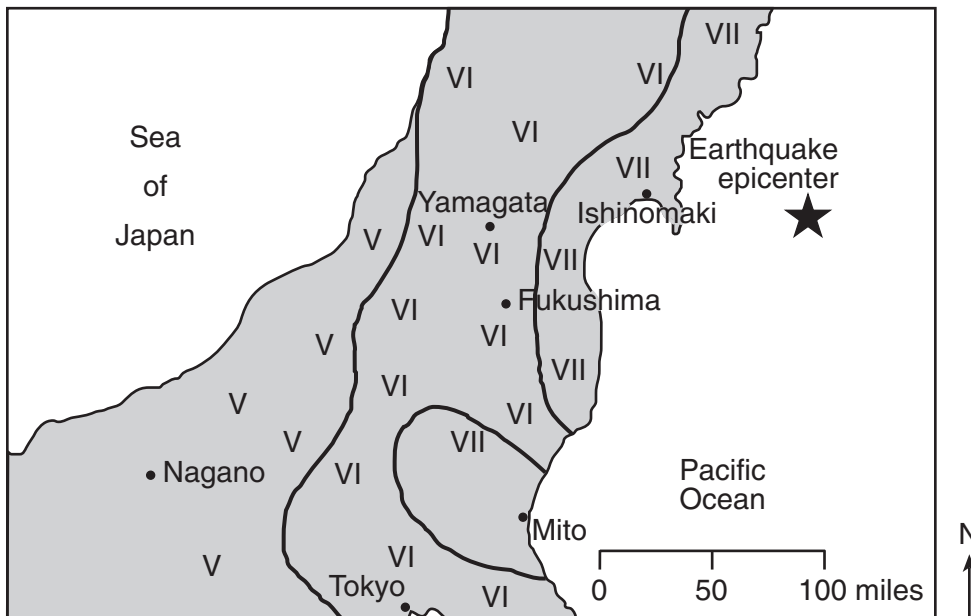
Do *not* allow credit if the line touches or passes through any Mercalli value.

Examples of 1-credit responses:

March 11, 2011 Earthquake in Japan



March 11, 2011 Earthquake in Japan



73 [1] Allow 1 credit if only the first four boxes are checked as shown below.

✓	parked cars rock
✓	dishes and windows broken
✓	felt by all persons
✓	some heavy furniture moved
	chimneys and monuments fall
	buildings shifted off foundations

Note: Allow credit if a symbol other than a check mark is used.

74 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- convergent boundary
- subduction zone

75 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- *P*-waves arrived earlier at Ishinomaki than at Nagano.
- The difference in arrival times was less at Ishinomaki.
- The *P*-wave and *S*-wave arrival time interval was greater at Nagano.
- The amplitude/magnitude of seismic waves was greater/bigger/stronger at Ishinomaki.
- There is less time difference between the *P*- and *S*-waves at the closer location.
- *P*- and *S*-waves were closer together.

76 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- install a tsunami monitoring and warning system
- build a seawall/barricade/barrier
- build tall structures on stronger foundations
- designate or plan evacuation routes
- prepare emergency kits/supplies
- relocate buildings to higher ground

Note: Do *not* allow credit for an action indicating an imminent tsunami (e.g., evacuate to higher ground).

77 [1] Allow 1 credit for 6 *or* six months.

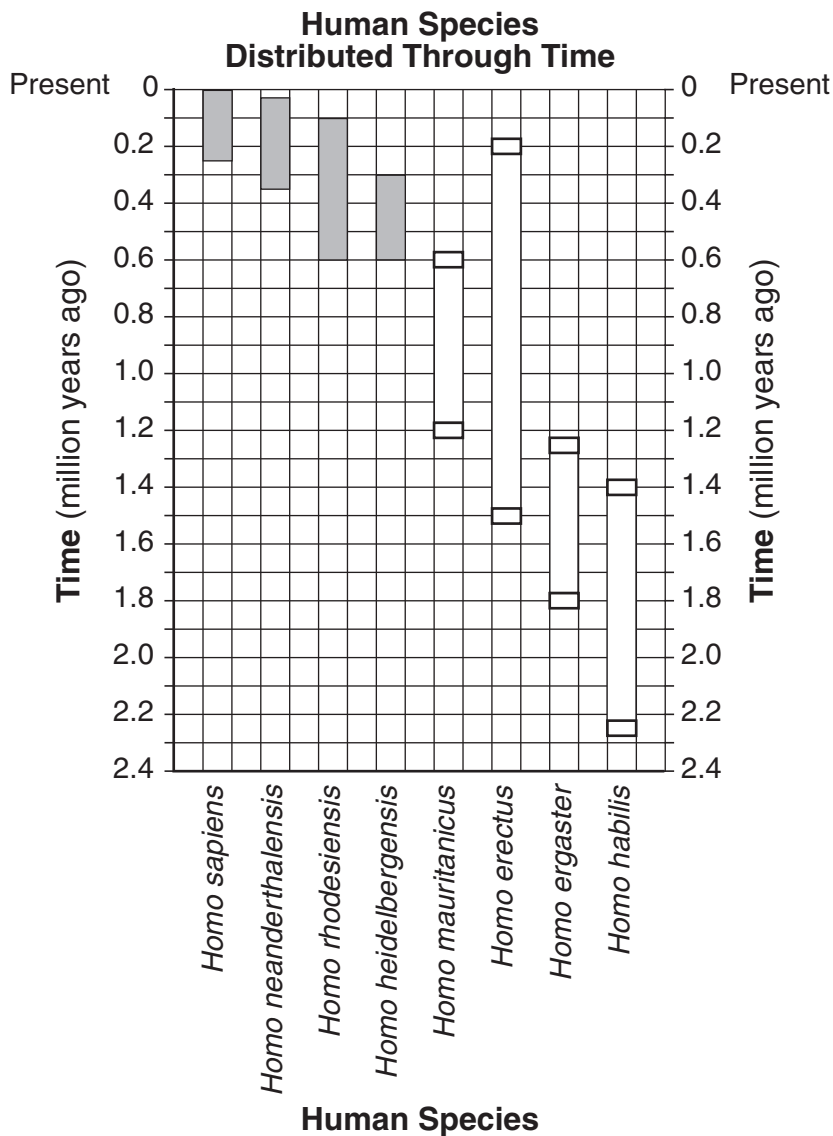
78 [1] Allow 1 credit. Acceptable responses include, but are not limited to:

- New York State is receiving higher angles of insolation.
- The Northern Hemisphere is experiencing a longer duration of insolation.
- The North Pole axis or Northern Hemisphere is tilted toward the Sun.
- The Sun appears higher in the sky.

Note: Do *not* allow credit for “Earth is tilted toward the Sun” because only the Northern Hemisphere is tilted toward the Sun.

Do *not* allow credit for “the Northern Hemisphere faces the Sun” because part of the Southern Hemisphere also faces the Sun during the daylight hours.

79 [1] Allow 1 credit if *all four* bars are drawn in the correct columns and the ends of the bars are within or touch the rectangular areas shown at the end of each bar.



Note: It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.

80 [1] Allow 1 credit for *Homo habilis* or *habilis* or *H. habilis*.

81 [1] Allow 1 credit for *two* correct species from the list below.

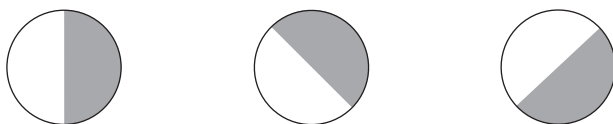
- *Homo rhodesiensis*
- *Homo heidelbergensis*
- *Homo erectus*

82 [1] Allow 1 credit for Pleistocene Epoch.

83 [1] Allow 1 credit for 12 h 33 min.

84 [1] Allow 1 credit if the student shades the right half of the Moon to show a last-quarter-Moon phase as shown below.

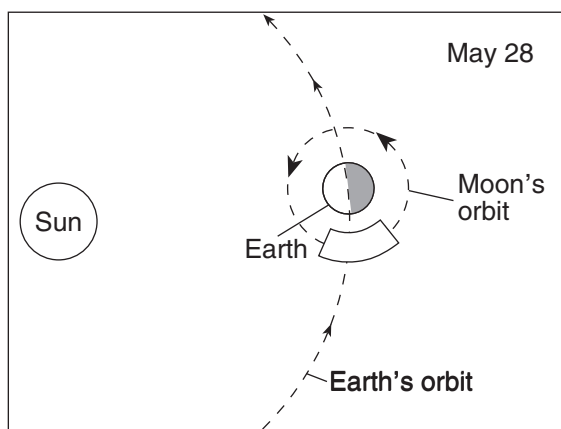
Examples of 1-credit responses:



85 [1] Allow 1 credit if the center of the **X** falls within or touches the band in the Moon's orbit shown below.

Note: Allow credit if a symbol other than an **X** is used.

It is recommended that an overlay of the same scale as the student answer booklet be used to ensure reliability in rating.



(Not drawn to scale)

Regents Examination in Physical Setting/Earth Science

June 2015

Chart for Converting Total Test Raw Scores to Final Examination Scores (Scale Scores)

The *Chart for Determining the Final Examination Score for the June 2015 Regents Examination in Physical Setting/Earth Science* will be posted on the Department's web site at: <http://www.p12.nysed.gov/assessment/> on Friday, June 19, 2015. Conversion charts provided for previous administrations of the Regents Examination in Physical Setting/Earth Science must NOT be used to determine students' final scores for this administration.

Online Submission of Teacher Evaluations of the Test to the Department

Suggestions and feedback from teachers provide an important contribution to the test development process. The Department provides an online evaluation form for State assessments. It contains spaces for teachers to respond to several specific questions and to make suggestions. Instructions for completing the evaluation form are as follows:

1. Go to <http://www.forms2.nysed.gov/emsc/osa/exameval/reexameval.cfm>.
2. Select the test title.
3. Complete the required demographic fields.
4. Complete each evaluation question and provide comments in the space provided.
5. Click the **SUBMIT** button at the bottom of the page to submit the completed form.

Map to Core Curriculum

June 2015 Physical Setting/Earth Science			
Question Numbers			
Key Ideas/Performance Indicators	Part A	Part B	Part C
Standard 1			
Math Key Idea 1	6		68, 71, 77
Math Key Idea 2	11, 14, 21, 30	41, 48, 50, 62, 64	75, 78, 79, 80, 84
Math Key Idea 3	5, 28	55, 57	67, 70, 72, 81
Science Inquiry Key Idea 1	12, 15, 17, 18, 19, 20, 24, 33, 34	37, 42, 43, 45, 52, 53, 56, 59, 61, 63	66, 85
Science Inquiry Key Idea 2	1, 21	58	
Science Inquiry Key Idea 3	1, 5, 6, 7, 8, 9, 10, 11, 13, 14, 18, 22, 23, 24, 25, 31, 32, 33, 34, 35	37, 41, 44, 45, 49, 50, 52, 53, 57, 62, 63, 65	71, 74, 75, 80
Engineering Design Key Idea 1			
Standard 2			
Key Idea 1		36	
Key Idea 2			
Key Idea 3		36	
Standard 6			
Key Idea 1	25, 27, 29, 31, 32	39, 42, 43, 46, 51, 52, 54, 58, 60, 61	69
Key Idea 2	3, 6, 8, 9, 13, 16, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 31, 32, 35	36, 37, 39, 40, 43, 44, 45, 46, 47, 48, 49, 50, 53, 54, 55, 56, 58, 60, 63, 65	66, 67, 68, 69, 70, 72, 74, 82, 83, 84, 85
Key Idea 3	10, 18	41	67, 73
Key Idea 4			
Key Idea 5	3, 7, 16, 22, 26	36, 40, 51, 54, 59, 61, 63	82, 83, 84
Key Idea 6			
Standard 7			
Key Idea 1			79
Key Idea 2			76
Standard 4			
Key Idea 1	1, 2, 3, 4, 5, 18, 19, 20, 21, 22, 23, 25, 26	39, 40, 41, 42, 46, 49, 54, 55, 56, 57	77, 78, 79, 80, 81, 82, 83, 84, 85
Key Idea 2	6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 24, 27, 28, 29, 30	36, 37, 38, 43, 44, 50, 51, 52, 53, 58, 59, 60, 61, 62, 63, 64, 65	66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76
Key Idea 3	31, 32, 33, 34, 35	45, 47, 48	
Reference Tables			
ESRT 2011 Edition (Revised)	1, 5, 6, 7, 8, 9, 10, 11, 13, 14, 18, 23, 24, 25, 31, 32, 33, 34, 35	37, 41, 44, 45, 49, 50, 52, 53, 57, 62, 63, 65	71, 74, 75, 80